Lester (Peng-Jian) Yang

Machine Learning Engineer | Applied AI and Research

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Machine Learning Engineer with 3+ years of industry experience developing applied machine learning systems for manufacturing and product engineering. Work spans LLMs, computer vision, predictive modeling, and optimization, from early research and experimentation through deployment. Research experience in natural language processing, reinforcement learning, and AI4Science, with peer-reviewed publications and US patent.

Skills

Languages: Python | SQL
Machine Learning: PyTorch | scikit-learn | XGBoost | Hugging Face | OpenCV | SHAP
Infrastructure: Docker | Git | Bash/Linux | SLURM | MLflow | vLLM
Areas: Large Language Models and NLP | Computer Vision | Reinforcement Learning | Optimization

Work Experience

Mirai Technologies, Remote | **Research Engineer (Part-time)** May 2024–Oct 2024

- Validated an integer-linear-programming approach to factory buffer-time allocation against 3M+ Toyota production records, identifying gaps between planned and actual manufacturing execution.
- Researched and proposed a reinforcement learning-based scheduling system (Transformer + PPO) as next-generation solution, surveying state-of-the-art approaches and designing integration with existing constraint programming infrastructure.

Logitech, Hsinchu, Taiwan | **Senior Engineering Scientist** Jun 2022–May 2024
Engineering Scientist *May 2021–Jun 2022*

- Reduced estimated manufacturing carbon footprint by 11%, calculated from energy use, by developing XGBoost models and SHAP analyses that identified energy-intensive factors in the spray-paint process.
- Improved color validation and production quality control by developing and deploying a patented computer-vision measurement system; named co-inventor on US Patent.
- Expanded ML adoption across all CMF-supported product lines and engineering teams in Hsinchu, Suzhou, and Cork by designing systems for color control, defect detection, engineering verification, and manufacturing process optimization.
- Enabled 50% of intern-led prototypes to become ongoing engineering projects by defining requirements and technical architecture, coordinating stakeholders, and mentoring 1-2 interns per intake through implementation and validation.

Omnistream Co., Singapore | **Data Science Intern** Apr 2020–Jun 2020

- Reduced the model feature set by 91% through feature engineering while maintaining comparable validation performance, and automated XGBoost feature analysis and reporting.

Selected Projects

- **LLM circuit editing**: Reduced a name-related bias score by 12.6% and improved toxicity-detection accuracy by 3.4% on Llama-3.2-1B by developing DICE, a targeted circuit-editing method built on edge attribution patching.
- **Hierarchical offline RL**: Found that explicit critic extraction underperformed HIQL across 10 OGBench visual-manipulation settings, tracing the regression to approximation error between state-value and action-value functions.
- **LangChain:** Improved PDF-loading diagnostics by adding `pdfplumber`-based visual debugging; merged PR (#4353, #4552).
- **Numerical reasoning with T5**: Improved DROP test F1 from 45.9 to 70.8 through sequential pre-training of T5-Small on numerical-reasoning and reading-comprehension tasks.

Education

MSc Artificial Intelligence, University of Amsterdam GPA: 8.61/10
Master of Information and Data Science, University of California, Berkeley GPA: 3.96/4.00
BSc Chemistry, Nagoya University

Publications and Patent

- S. Baxevanakis, P. Yang. "Test-Time Scaling for Small VLMs on Multilingual Visual MCQ." *ImageCLEF* 2026; arXiv:2607.09438.
- P. Yang et al. "Color matching system for product manufacturing." US Patent US11847799B2, 2023.
- P. Yang, Y. Chen, Y. Chen, D. Cer. "NT5?! Training T5 to Perform Numerical Reasoning." *arXiv:2104.07307*, 2021.
- P. Yang, M. Sugiyama, K. Tsuda, T. Yanai. "Artificial neural networks applied as molecular wave function solvers." *Journal of Chemical Theory and Computation*, 2020.

Awards

- **1st Place** at the ImageCLEF 2026 Multimodal Reasoning Competition Visual MCQ Task.